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EXAMINER

LEUNG, JENNIFER A

ART UNIT	PAPER NUMBER
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1764

10

DATE MAILED: 02/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/689,297

Applicant(s)

KIHARA ET AL.

Examiner

Jennifer A. Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 18 and 25-44 is/are pending in the application.
- 4a) Of the above claim(s) 18 and 25-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 37-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 18 and 25-44 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 October 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's Amendment filed on November 5, 2002 has been received and carefully considered. The changes to the Specification submitted on November 5, 2002 are acceptable. Claims 12-17 and 19-24 have been cancelled. Claims 18 and 25-44 remain active. Claims 18 and 25-36 are drawn to a non-elected invention and are therefore withdrawn from consideration. Claims 37-44 have been added.

### ***Drawings***

2. Figures 18 and 19 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).
3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "24" in FIG. 1 has been used to designate both "conduit [for column bottoms liquid]" (page 14, line 8) and "conduit [for part of reboiler output vapor]" (page 14, line 15).
4. The drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the drawings. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

5. Claims 39, 41-42 and 44 are objected to because of the following informalities. Appropriate correction is required.

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With respect to claims 39 and 42, -- plurality of mutually parallel -- should be inserted after "said" in line 12 for clarity in claim terminology.

With respect to claims 41 and 44, -- isotope- -- should be inserted before "enriched" in line 5 for consistency in claim terminology.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 37-44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 37, the phrase "can be" (line 3) is considered vague and indefinite. Furthermore, it is unclear as to what is intended by " $k^{th}$ " or " $(k+1)^{th}$ " since the element "k" is not properly defined within the claim. Furthermore, it is unclear as to the structural relationship of "a plurality of components" (line 2) to the other elements of the apparatus. Furthermore, it is unclear as to the structural limitation the applicants are attempting to recite by, "a reboiler into which liquid drawn from the column is introduced," (lines 4-5) and "a condenser into which vapor drawn from the column is introduced," (lines 8-9). Furthermore, it is unclear as to the structural limitation the applicants are attempting to recite by, "wherein an outlet of the reboiler of the  $k^{th}$  column or an inlet of the condenser of the  $(k+1)^{th}$  column by introduction conduits," (lines 7-8), as the elements are lacking in structural relationship.

With respect to claim 38, "the inlet" (line 5) lacks proper positive antecedent basis.

With respect to claims 39 and 42, "type" (lines 3, 5, 8) renders the claims indefinite, because the claims include elements not actually disclosed (those encompassed by "type"), thereby rendering the scope of the claims unascertainable. Furthermore, it is unclear as to the relationship of "a honeycomb structure" (line 10) to "a honeycomb structure" set forth in lines 8-9. Likewise, the relationship of "a lattice structure (line 11) to "a lattice structure" set forth in line 9. Furthermore, it is unclear as to which "plates" are intended by "these plates" (line 13).

With respect to claims 40 and 43, "the material" lacks proper positive antecedent basis, and it is unclear as to what is intended by "material".

With respect to claims 41 and 44, "the isotope-enriched material" (line 2) lacks proper positive antecedent basis. Furthermore, it is unclear as to the relationship of "a return conduit" (line 4) to the "return conduits" set forth in claim 37, line 9.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

7. Claims 37-38 are rejected under 35 U.S.C. 102(b) as being anticipated by Atkinson et al. (U.S. 4,759,786).

With respect to claim 37 (as best understood), Atkinson et al. (FIG. 5) disclose an apparatus comprising a plurality of components using a plurality of distillation columns (a first column **8** to an  $n^{\text{th}}$  column **20**;  $n$  equals 2) constructed in cascade, wherein each of the distillation columns **8, 20** comprises a reboiler (**44, 28** respectively) and a condenser (**10, 26** respectively), and wherein an outlet of the condenser **26** of the  $(k+1)^{\text{th}}$  column **20** is connected to the  $k^{\text{th}}$

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column **8** by return conduits **34, 4, 6**. As it is unclear as to the structural limitation the applicants are attempting to recite by, "wherein an outlet of the reboiler of the  $k^{\text{th}}$  column or an inlet of the condenser of the  $(k+1)^{\text{th}}$  column by introduction conduits" (lines 7-8), the apparatus of Atkinson et al., which comprises substantially the elements recited (namely reboiler **44** with outlet; condenser **26** with inlet; and introduction conduits, i.e. passing through **14, 22**) meets the claim.

With respect to claim 38, Atkinson et al. (FIG. 5) disclose said introduction conduits (i.e. conduit passing through **14, 22**) connect the outlet of the reboiler **44** of the  $k^{\text{th}}$  column **8** to the middle section the  $(k+1)^{\text{th}}$  column **20**; and said return conduits **34, 4, 6** connect the outlet of the condenser **26** of the  $(k+1)^{\text{th}}$  column **20** to the bottom of the  $k^{\text{th}}$  column **8**.

Instant claims 37-38 structurally read on the apparatus of Atkinson et al.

8. Claims 37-38 are rejected under 35 U.S.C. 102(b) as being anticipated by Asselineau et al. (U.S. 5,242,550).

With respect to claim 37 (as best understood), Asselineau et al. (FIG.) disclose an apparatus comprising a plurality of components using a plurality of distillation columns (a first column **C2** to an  $n^{\text{th}}$  column **C3**, where  $n$  equals 2) constructed in cascade, wherein each of the distillation columns **C2, C3** comprises a reboiler (see FIG.) into which liquid drawn from the column is introduced and a condenser (see FIG.) into which vapor drawn from the column is introduced, and wherein an outlet of the condenser of the  $(k+1)^{\text{th}}$  column **C3** is connected to the  $k^{\text{th}}$  column **C2** by return conduits **13, 14** (via flow communication with reflux flask **B**). As it is unclear as to the structural limitation the applicants are attempting to recite by, "wherein an outlet of the reboiler of the  $k^{\text{th}}$  column or an inlet of the condenser of the  $(k+1)^{\text{th}}$  column by introduction conduits" (lines 7-8), the apparatus of Asselineau et al., which comprises

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substantially the elements recited (namely  $k^{\text{th}}$  column reboiler with outlet;  $(k+1)^{\text{th}}$  column condenser with inlet; and introduction conduits **10**) meets the claim.

With respect to claim 38, Asselineau et al. (FIG.) disclose said introduction conduit **10** connects the outlet of the reboiler of the  $k^{\text{th}}$  column **C2** to the top of the  $(k+1)^{\text{th}}$  column **C3** and said return conduits **13**, **14** connect the outlet of the condenser of the  $(k+1)^{\text{th}}$  column **C3** to the bottom of the  $k^{\text{th}}$  column **C2**.

Instant claims 37-38 structurally read on the apparatus of Asselineau et al.

9. Claims 37-38 are rejected under 35 U.S.C. 102(b) as being anticipated by Asselineau et al. (U.S. 5,288,370).

With respect to claim 37 (as best understood), Asselineau et al. (FIG.) disclose an apparatus comprising a plurality of components using a plurality of distillation columns (a first column **C2** to an  $n^{\text{th}}$  column **C3**, where  $n$  equals 2) constructed in cascade, wherein each of the distillation columns **C2**, **C3** comprises a reboiler (see FIG.) into which liquid drawn from the column is introduced and a condenser (see FIG.) into which vapor drawn from the column is introduced, and wherein an outlet of the condenser of the  $(k+1)^{\text{th}}$  column **C3** is connected to the  $k^{\text{th}}$  column **C2** by return conduits (via lines **7** or **8**). As it is unclear as to the structural limitation the applicants are attempting to recite by, "wherein an outlet of the reboiler of the  $k^{\text{th}}$  column or an inlet of the condenser of the  $(k+1)^{\text{th}}$  column by introduction conduits" (lines 7-8), the apparatus of Asselineau et al., which comprises substantially the elements recited (namely  $k^{\text{th}}$  column reboiler with outlet,  $(k+1)^{\text{th}}$  column condenser with inlet, and introduction conduit **13**) meets the claim.

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With respect to claim 38, Asselineau et al. (FIG.; column 3, line 62 to column 4, line 9) disclose said introduction conduit **13** connects the outlet of the reboiler of the  $k^{\text{th}}$  column **C2** to the middle of the  $(k+1)^{\text{th}}$  column **C3** and said return conduits (via lines **7** and **8**) connect the outlet of the condenser of the  $(k+1)^{\text{th}}$  column **C3** to the bottom or middle section of the  $k^{\text{th}}$  column **C2**.

Instant claims 37-38 structurally read on the apparatus of Asselineau et al.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 39 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atkinson et al. (U.S. 4,759,786), as applied to claims 37-38 above, and further in view of Glitsche et al. (U.S. 3,969,447) or Chen et al. (U.S. 4,604,247).



With respect to claims 39 and 42, Atkinson et al. disclose the columns may be provided with a packing in order to facilitate liquid/vapor contact (column 4, lines 55-57 and column 5, lines 26-30). In view of the newly added limitations, however, Atkinson et al. are silent as to the specific "structure" of the packing. In any event, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to select an appropriate type of structured packing for the packing in the columns of Atkinson et al., on the basis of suitability for intended use and absent showing unexpected results. Furthermore, the use of structured packing of the type recited, i.e. promoting-fluid-dispersion type or non-promoting-fluid-dispersion type, for distillation columns is conventionally known in the art, as evidenced by Glitsche et al. or Chen et al. In particular, Glitsche et al. teach a non-promoting-fluid-dispersion type structure packing **30** comprising a honeycomb or lattice structure (FIG. 1, 2, 2A). Chen et al. teach a promoting-fluid-dispersion type structure packing **10** comprising a plurality of wave-shaped thin plates **12** disposed parallel to the column axis and made into the form of a block by layering the plates in contact with one another (FIG. 1, 2, 4, 5).

11. Claims 39 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asselineau et al. (U.S. 5,242,550), as applied to claims 37-38 above, and further in view of Glitsche et al. (U.S. 3,969,447) or Chen et al. (U.S. 4,604,247).

Asselineau et al. further disclose the distillation columns comprise perforated trays for affecting vapor-liquid contact (column 4, lines 3-8). However, Asselineau et al. are silent as to whether the columns may comprise structured packing, such as a promoting-fluid-dispersion type or non-promoting-fluid-dispersion type packing.

Glitsche et al. teach a non-promoting-fluid-dispersion type structure packing **30** comprising a honeycomb or lattice structure (FIG. 1, 2, 2A). It would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to substitute the structured packing of Glitsche et al. for the perforated trays in the apparatus of Asselineau et al., on the basis of suitability for intended use and absent showing unexpected results, because the structured packing provides excellent vapor-liquid contact and provides ease and flexibility with which the structure can be modified to adjust to various operating conditions, i.e. desired liquid filming action (column 4, lines 3-17), as taught by Glitsche et al.

Chen et al. teach a promoting-fluid-dispersion type structure packing **10** comprising a plurality of wave-shaped thin plates **12** disposed parallel to the column axis and made into the form of a block by layering the plates in contact with one another (FIG. 1, 2, 4, 5). It would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to substitute the structured packing of Chen et al. for the perforated trays in the apparatus of Asselineau et al., on the basis of suitability for intended use and absent showing unexpected results, because the structured packing enhances the vapor-liquid contact within the column without adversely affecting the operational characteristics or adding to pressure losses within the column (column 4, lines 38-48), as taught by Chen et al.

12. Claims 39 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asselineau et al. (U.S. 5,288,370), as applied to claims 37-38 above, and further in view of Glitsche et al. (U.S. 3,969,447) or Chen et al. (U.S. 4,604,247).

Asselineau et al. further disclose the distillation columns comprise perforated trays for affecting vapor-liquid contact (column 4, lines 37-43). However, Asselineau et al. are silent as to

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whether the columns may comprise structured packing, such as a promoting-fluid-dispersion type or non-promoting-fluid-dispersion type packing. The same comments with respect to Glitsche et al. or Chen et al. above apply.

13. Claims 37-38, 40-41 and 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spevack (U.S. 4,788,051) in view of Atkinson et al (U.S. 4,759,786) or Asselineau et al. (U.S. 5,242,550) or Asselineau et al. (U.S. 5,288,370)

With respect to claims 37-38, 40-41 and 43-44, Spevack discloses an apparatus comprising an isotope concentrating system (I) and a feed isotope regenerator (II). (Abstract; FIG. 1; column 3, lines 45-55; column 4, lines 3-46).

Regarding isotope concentrating system (I), Spevack discloses the system may comprise an isotope concentration system of any suitable form and further cites specifically "a conventional water distillation system" for enriching the desired isotope, wherein the distillation system may comprise a phase conversion element (boiling device, i.e. reboiler) **203** and a phase conversion element (condensing device, i.e. condenser) **204**. (column 4, lines 14-32). Although Spevack is silent as to specifically a "cascade" distillation column configuration for the conventional water distillation system, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to select the cascade distillation column configuration because use of cascade configurations is conventionally known in the art for the concentration or enrichment of components within process streams. Evidence of such configurations is illustrated by Atkinson et al. or Asselineau et al. '550 or Asselineau et al. '370.

Atkinson et al. (FIG. 5) teach a cascade distillation column configuration comprising a plurality of distillation columns (a first column **8** to an  $n^{\text{th}}$  column **20**;  $n$  equals 2), wherein each

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of the distillation columns **8**, **20** comprises a reboiler (**44**, **28** respectively) and a condenser (**10**, **26** respectively), and wherein an outlet of the condenser **26** of the  $(k+1)^{\text{th}}$  column **20** is connected to the  $k^{\text{th}}$  column **8** by return conduits **34**, **4**, **6**. Atkinson et al. (FIG. 5) further teach said introduction conduits (i.e. conduit passing through **14**, **22**) connect the outlet of the reboiler **44** of the  $k^{\text{th}}$  column **8** to the middle section the  $(k+1)^{\text{th}}$  column **20**; and said return conduits **34**, **4**, **6** connect the outlet of the condenser **26** of the  $(k+1)^{\text{th}}$  column **20** to the bottom of the  $k^{\text{th}}$  column **8**.

Asselineau et al. \*550 (FIG.) teach a cascade distillation column configuration comprising a plurality of distillation columns (a first column **C2** to an  $n^{\text{th}}$  column **C3**, where  $n$  equals 2) constructed in cascade, wherein each of the distillation columns **C2**, **C3** comprises a reboiler (see FIG.) into which liquid drawn from the column is introduced and a condenser (see FIG.) into which vapor drawn from the column is introduced, and wherein an outlet of the condenser of the  $(k+1)^{\text{th}}$  column **C3** is connected to the  $k^{\text{th}}$  column **C2** by return conduits **13**, **14** (via flow communication with reflux flask **B**). Asselineau et al. (FIG.) further teach said introduction conduit **10** connects the outlet of the reboiler of the  $k^{\text{th}}$  column **C2** to the top of the  $(k+1)^{\text{th}}$  column **C3** and said return conduits **13**, **14** connect the outlet of the condenser of the  $(k+1)^{\text{th}}$  column **C3** to the bottom of the  $k^{\text{th}}$  column **C2**.

Asselineau et al. \*370 (FIG.) teach a cascade distillation column configuration comprising a plurality of distillation columns (a first column **C2** to an  $n^{\text{th}}$  column **C3**, where  $n$  equals 2) constructed in cascade, wherein each of the distillation columns **C2**, **C3** comprises a reboiler (see FIG.) into which liquid drawn from the column is introduced and a condenser (see FIG.) into which vapor drawn from the column is introduced, and wherein an outlet of the condenser of the  $(k+1)^{\text{th}}$  column **C3** is connected to the  $k^{\text{th}}$  column **C2** by return conduits (via

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lines 7 or 8). Asselineau et al. (FIG.; column 3, line 62 to column 4, line 9) further teach said introduction conduit **13** connects the outlet of the reboiler of the  $k^{\text{th}}$  column **C2** to the middle of the  $(k+1)^{\text{th}}$  column **C3** and said return conduits (via lines 7 and 8) connect the outlet of the condenser of the  $(k+1)^{\text{th}}$  column **C3** to the bottom or middle section of the  $k^{\text{th}}$  column **C2**.

In addition, Spevack further discloses the isotope concentrating system (I) may comprise a mono-temperature concentrating system having a phase converter (burner) **204** in which a desired isotope and a supply of oxygen and/or hydrogen, as required, are recombined by combustion to form liquid water (column 4, lines 33-46). Therefore, the modified apparatus of Spevack substantially comprises the "hydrogenation device" as instantly claimed.

Regarding feed isotope regenerator (II), Spevack discloses the regenerator (II) conducts an isotope exchange with the isotope-impooverished stream discharged from system (I), such that the stream's supply of the desired isotope (i.e. oxygen and/or hydrogen) is replenished and then returned to system (I). Therefore, system (II) is inherently connected by a return conduit to at least one of said distillation columns in the modified apparatus of Spevack, and substantially comprises the "isotope scrambler" as instantly claimed. (column 3, lines 45-55; column 5, lines 19-36).

14. Claims 39 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spevack (U.S. 4,788,051) in view of Atkinson et al (U.S. 4,759,786) or Asselineau et al. (U.S. 5,242,550) or Asselineau et al. (U.S. 5,288,370), as applied to claims 37-38 above, and further in view of Glitsche et al. (U.S. 3,969,447) or Chen et al. (U.S. 4,604,247).

The same comments above with respect to Spevack, Atkinson et al., Asselineau et al. '550, Asselineau et al. '370, Glitsche et al. and Chen et al. apply.

*Response to Arguments*

15. The Amendment submitted on November 5, 2002 states that, "In response [to the Office action], applicants have amended the drawings... to correct informalities." (page 45, "REMARKS"). However, the drawing objections are maintained, as the applicants have not proposed proper drawing corrections nor provided corrected drawings in reply to the Office action.

16. Applicant's arguments filed on November 5, 2002 have been fully considered, but they are not persuasive. With respect to claim 37, applicants argue that in contrast to the instant invention, the return conduits **34**, **4**, and **6** in the apparatus shown in Figure 5 of Atkinson et al. connect the top of column **20** to the bottom of column **8**. Applicants also argue that, as shown in the statement in column 5, lines 48 -50 of Atkinson et al., the return conduits do not connect condenser **26** and reboiler **44** (amendment page 46, "Regarding Claim Rejection - 35 U.S.C. §102"). However, the Examiner further asserts that the apparatus of Atkinson et al. meets the claim. In view of Atkinson et al., column 5, lines 48-50, it is best interpreted that the gas stream (as a whole) enters condenser **26** as it rises to the top of the column **20**. A non-condensing portion of the gas stream, namely "the remainder... withdrawn through outlet **34**", must pass through the condenser **26** and subsequently the outlet of the condenser **26** in order to be withdrawn through outlet **34**. Thus, the outlet of condenser **26** is connected by fluid communication to the return conduits, defined partially by **34**. Similar comments apply with respect to the structural limitation of "said introduction conduits connect the outlet of the reboiler," now present in claim 38 (note Atkinson et al., column 5, lines 36-40). In addition, applicant argues that in the apparatus of claim 37, "it is possible to return a part of the condensed

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liquid to the upstream column." However, such argument is not commensurate with the language of the claims, which merely recites a connecting means (i.e. return conduits) between the condenser and upstream column.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is 703-305-4951. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Jennifer A. Leung  
February 7, 2003

JAL

JENNIFER A. LEUNG  
PRIMARY EXAMINER